

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
26 August 2004 (26.08.2004)

PCT

(10) International Publication Number
WO 2004/071899 A1

(51) International Patent Classification⁷: B65D 81/32, 85/804

(21) International Application Number: PCT/IB2004/000396

(22) International Filing Date: 5 February 2004 (05.02.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: BO2003A000062 13 February 2003 (13.02.2003) IT

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

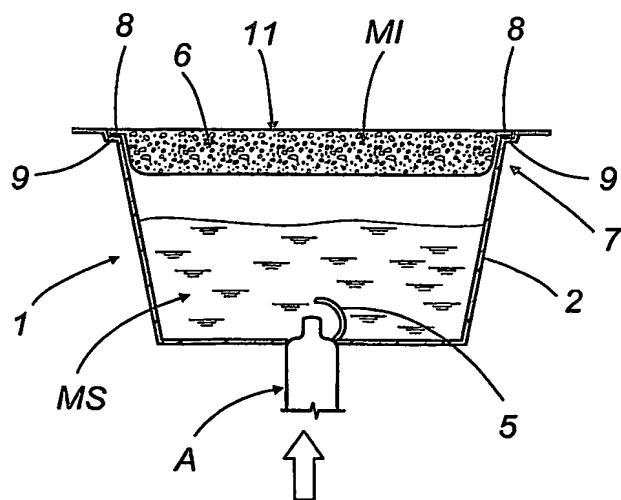
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A CAPSULE TO BE USED TO PREPARE AN INFUSED BEVERAGE



(57) Abstract: A capsule (1) used to prepare an infused beverage, especially cappuccino or macchiato coffee, comprises a first container (6) made of a substantially flexible material and containing a powdered infusion substance (MI), the coffee, and a second container (2), attached to the first container (6), made of a substantially rigid material and containing a powdered soluble substance (MS), the milk.

DescriptionA capsule to be used to prepare an infused beverageTechnical Field

The present invention relates to a capsule that can be used to prepare an infused beverage.

In particular, the present invention relates to a single-dose coffee capsule to be used in an espresso coffee machine in which a flow of hot or boiling water forced through the capsule positioned in a percolating chamber produces a hot milk or coffee beverage, such as, for example, macchiato espresso coffee or cappuccino, which the present specification expressly refers to but without restricting the scope of the invention.

Background Art

Nowadays, a very popular way of preparing espresso coffee, especially in the home, is to use single-dose "coffee pods", which are extremely easy to use and readily available on the market. Typically, in this context, a pod is a single measure of coffee or other infusion product enclosed in a sealed filter paper container or bag of substantially cylindrical shape designed to be placed in a suitable holder forming part of the espresso coffee machine.

European patent EP 776166 B1 describes the method for making a filter paper bag or pod where the infusion material, namely coffee, is compressed, mixed with soluble additive material, such as powdered milk or creamer or the like, and enclosed between two layers of filter paper. The pod thus obtained can be used in an espresso coffee machine to make a hot coffee and milk beverage, especially cappuccino.

The use of a pod of the type made of filter paper, as described in the aforementioned patent, has considerable disadvantages.

The hot water flowing through the filter paper pod dissolves

all the soluble additive material, namely the powdered milk, present in the mixture, whilst the infusion material, namely the coffee, tends to remain compacted. As a result, the beverage made with pods of this kind often contains incorrect proportions of 5 milk to coffee. In other terms, the beverage made using the pods described above, which are made entirely of filter paper, contains an excessively high concentration of milk, making it unpleasant to the taste.

Another disadvantage of these pods made entirely of filter 10 paper is that the part of the mixture constituted by the soluble additive material dissolves completely, thus partly emptying the pod, causing it to become soft and spongy, and difficult to remove from the holder of the coffee machine when an unused pod has to be placed in the machine to make another cup of coffee.

15 The present invention has for an aim to provide a capsule used to prepare an infused coffee and milk beverage that overcomes the above mentioned disadvantages.

Disclosure of the invention

20 The present invention accordingly provides a capsule that can be used to prepare an infused beverage and that is characterised in that it comprises a first container made of a substantially flexible material and containing a powdered infusion substance, and a second container made of a substantially rigid 25 material and containing a powdered soluble substance.

Brief description of the drawings

30 The invention will now be described with reference to the accompanying drawings which illustrate a preferred, non-restricting embodiment of a capsule used to prepare an infused beverage, and in which:

Figure 1 is a front cross section of a preferred embodiment of the capsule according to the invention;

35 Figure 2 is a detail, shown in cross section, of the capsule of Figure 1;

Figure 3 is another front cross section of the capsule of Figure 1;

Figure 4 is a perspective view of the capsule according to the present invention;

Figure 5 is a front cross section of the capsule of Figure 4 during infusion; and

5 Figure 6 is a detail, shown in cross section, of the capsule of Figure 5.

Detailed description of the preferred embodiments of the invention

With reference to the accompanying drawings, the numeral 10 1 denotes a single-dose capsule for use in an espresso coffee machine to prepare a hot coffee and milk beverage, especially cappuccino.

15 The espresso coffee machine, not illustrated because it is a very well known type of machine, basically comprises a device for producing a flow of hot or boiling water that is forced through the capsule 1 once the latter has been placed in a holder in a percolating chamber where the hot beverage is brewed.

20 The capsule 1 comprises a closed container or cartridge 2, preferably in the shape of truncated cone made of a food safe plastic material.

25 As illustrated in Figures 5 and 6, the bottom surface 3 of the cartridge 2 has a central hole 4, preferably circular, covered by a seal 5 of suitable material designed to be opened or pierced by a hollow needle A forming part of the coffee machine. In an alternative embodiment, the seal 5 forms an integral part of the bottom surface 3 of the cartridge 2, that is to say, it constitutes a portion of the surface 3 that can be easily pierced.

30 The cartridge 2 holds a predetermined quantity of powdered soluble material MS comprising powdered milk or creamer or the like. The material MS may also comprise a predetermined quantity of powdered sugar.

35 As illustrated in Figures 1 and from 3 to 5, the capsule 1 also comprises a container or pod 6 of filter paper or similar filter material, containing a tablet of infusion material MI, namely coffee powder, and positioned at the top 7 of the cartridge 2.

More specifically, as shown in Figures 1, 2, 3 and 5, the

outer annular edge 8 of the pod 6 rests on, and is fixed to, a matching annular protuberance 9 of the cartridge 2, running round the outer edge at the top 7 of the cartridge 2.

5 The edge 8 of the pod 6 is fixed to the annular protuberance 9 of the cartridge 2 preferably by a gluing, heat-sealing or similar process.

In a still more preferable solution, fixing is accomplished by the currently known process of ultrasound sealing.

10 As illustrated in Figures 2, 3 and 4, the capsule 1 is advantageously covered and sealed by a sheet 10 of cover material, such as, for example, aluminium foil or the like, which is applied to the end of the protuberance 9 of the capsule 1 cartridge 2, for example by gluing, heat sealing or ultrasound sealing, in such a way as to cover the top 11 of the pod 6, thus keeping in the aroma 15 of the coffee it contains.

20 The cover 10 is designed to be removed just before the capsule 1 is placed by the user in the appropriate holder in the coffee machine. The user can then start preparing the cappuccino by pressing the coffee machine start button which causes a relative movement between the needle A and the capsule 1 such that the needle A pierces the seal 5 and penetrates the hole in the capsule 1.

25 The flow of hot water produced by the machine passes first through the pod 6, creating a flow of infused coffee MI which falls onto and wets the soluble creamer MS inside the cartridge 2 and from there flows through the hollow interior of the needle A to produce cappuccino that fills an underlying glass or cup (not illustrated).

30 Thus, a delectable cappuccino with an optimum proportion of milk to coffee, can be prepared every time.

Once used, the capsule 1 can be removed very easily from the machine, thanks especially to the closed, rigid structure of the cartridge 2. Further, when the capsule 1 is moved away from the needle A, the seal 5 tends to re-close the hole 4, preventing 35 residual water or beverage from dripping out and dirtying the user or the area around the machine.

Moreover, it should be stressed that the capsule 1 disclosed

herein can be safely handled and sold without any overwrapping thanks to the rigid structure of the cartridge 2 and to the cover 10 attached to the top of it and placed only over the top face of the pod 6. This means less packaging material is required which in 5 turn means not only considerable savings in terms of lower production and selling costs but also a reduced impact on the environment.

It will be understood that the capsule as described herein can be modified and adapted in several ways without thereby departing 10 from the scope of the inventive concept. Moreover, all the details of the invention may be substituted by technically equivalent elements.

Claims

1. A capsule (1) used to prepare an infused beverage, characterised in that it comprises a first container (6) made of a substantially flexible material and containing a powdered infusion substance (MI), and a second container (2), attached to the first container (6), made of a substantially rigid material and containing a powdered soluble substance (MS).
5
2. The capsule according to claim 1, characterised in that the flexible first container (6) is attached to the rigid second container (2) by heat sealing.
- 10 3. The capsule according to claim 1, characterised in that the flexible first container (6) is attached to the rigid second container (2) by gluing.
4. The capsule according to claim 1, characterised in that the flexible first container (6) is attached to the rigid second container (2) by ultrasound sealing.
15
5. The capsule according to any of the foregoing claims from 1 to 4, characterised in that at least the top of it is covered by a sheet (10) of protective material.
6. The capsule according to any of the foregoing claims from 1 to 5, characterised in that the flexible first container (6) comprises a pod (6) made of filter paper or other similar filter material.
20
7. The capsule according to any of the foregoing claims from 1 to 6, characterised in that the rigid second container (2) comprises a cartridge (2) made of a food safe plastic material.
25
8. The capsule according to claim 7, characterised in that the bottom surface (3) of the cartridge (2) has a hole (4) in it, covered by a seal (5) of suitable material designed to be pierced or removed.
- 30 9. The capsule according to claim 8, characterised in that the seal (5) constitutes a portion of the bottom surface (3) of the cartridge (2).
10. The capsule according to claims 6 and 7 or 8, or 9, characterised in that the pod (6) of filter paper has an annular

outer edge (8) fixed to a matching annular protuberance (9) on the plastic cartridge (2), at the top (7) of the cartridge (2) itself.

11. The capsule according to claims 5 and 10, characterised in that the sheet (10) of protective cover material is removably placed over the top of the filter paper pod (6); the sheet (10) being fixed to the edge of the outer protuberance (9) of the cartridge (2).

12. The capsule according to any of the foregoing claims from 1 to 11, characterised in that the infusion substance (MI) comprises powdered coffee.

13. The capsule according to any of the foregoing claims from 1 to 12, characterised in that the soluble substance (MS) comprises powdered milk and/or creamer and similar soluble substances.

1/2

FIG.1

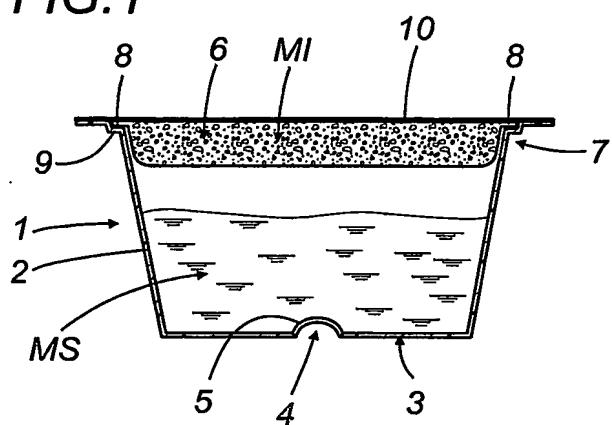


FIG.2

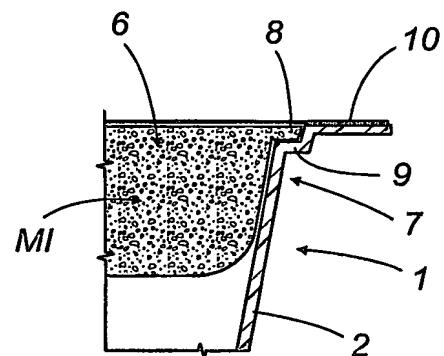
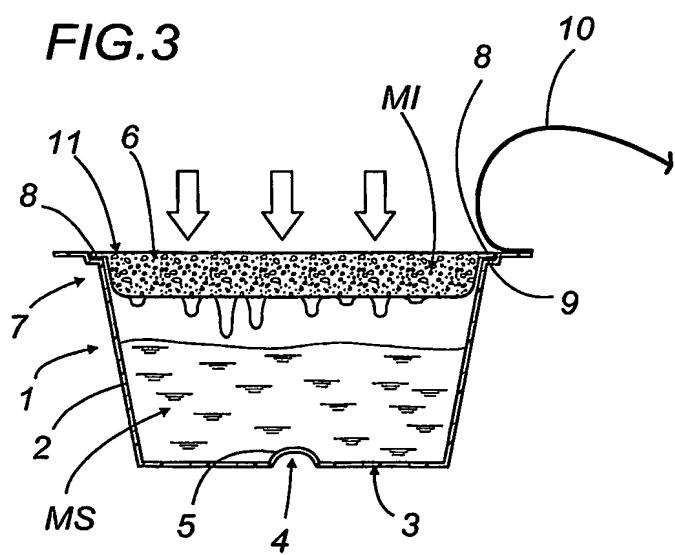


FIG.3



2/2

FIG.4

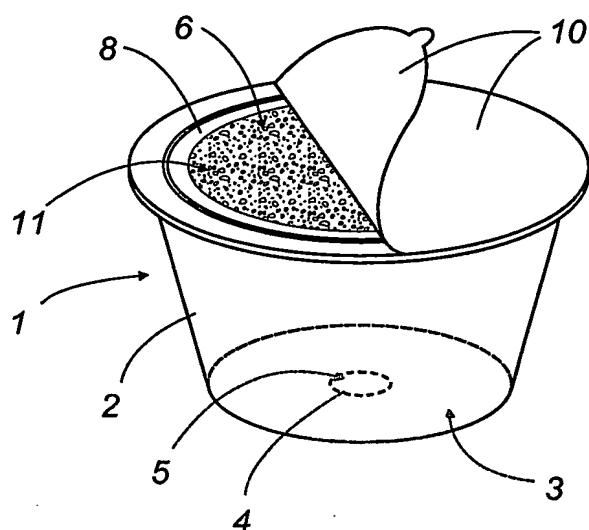


FIG.5

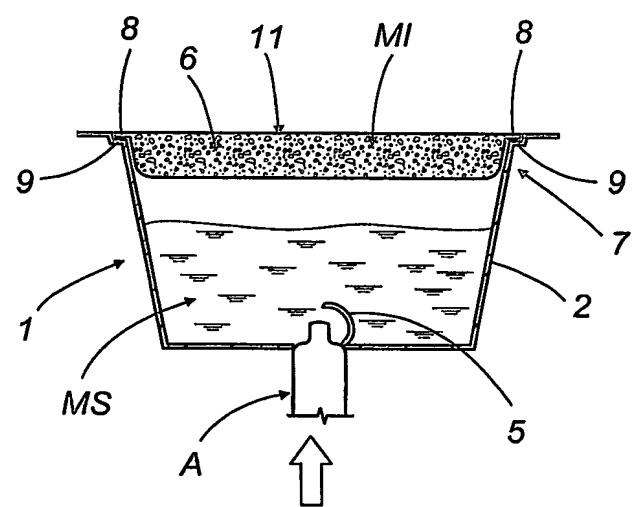
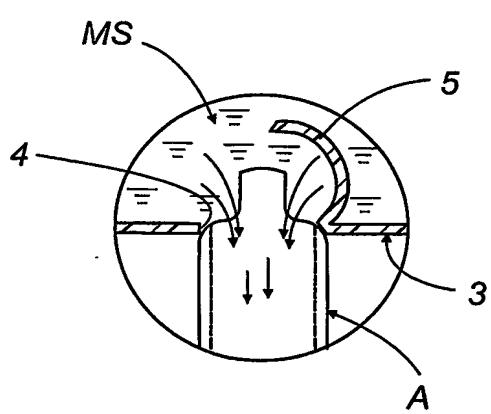


FIG.6



INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB2004/000396

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B65D81/32 B65D85/804

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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Date of the actual completion of the International search

24 May 2004

Date of mailing of the International search report

02/06/2004

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INTERNATIONAL SEARCH REPORT

In International Application No
PCT/IB2004/000396

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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